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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/784,170

Applicant(s)

BACK, DAE-WHAN

Examiner

Ryan C. Kavleski

Art Unit

2475

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 March 2010.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-16 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/CD)
Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

Response to Amendments

1. This communication is in response to Applicant's reply filed under 3 CFR 1.111 on 3/30/2010. Claims 1 and 6 were amended, claims 11-16 were added and claims 1-16 remain pending.

Information Disclosure Statement

2. The information disclosure statement filed 4/8/2010 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. Each of the Foreign patent documents submitted are not accompanied by an English abstract. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Objections

3. Claims 1 and 6 are objected to because of the following informalities: the limitation "according to data size of the logical channel" can raise issue to what the data size is in reference to with the logical channel since a logical channel is in itself not the data, examiner recommends amending the limitation to "according to a data size of symbol data for the logical channel" to clarify. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
6. Regarding claims 1 and its dependents, the limitation "a buffer memory for storing the symbol data for the logical channel according to input sequences of the symbol data without division of segments" is indefinite because it is unclear to what is referred to, the buffer memory or the symbol data, with regards to "without division of segments" and what would be considered a segment.
7. Regarding claims 6 and its dependents, these claims comprise of the same limitation addressed in regards to claims 1 and its dependents, therefore the same rejection applies.
8. Regarding claim 12, the limitation "the symbol data of the corresponding channel are separately stored in different sectors" is indefinite because it raises issue with what is recited in claim 1, in which symbol data is stored without division of segments, which can be seen as without dividing the amount of data from a channel in the buffer memory.
9. Regarding claim 15, this claim comprises of the same limitations as claim 12, therefore the same rejection applies.

10. Regarding claim 13, the limitation "the buffer memory comprises a first memory and a second memory" is indefinite because it is unclear to what is being referred to as a first and second memory for a buffer memory.

11. Regarding claim 16, this claim comprises of the same limitations as claim 13, therefore the same rejection applies.

12. Regarding claim 13, the limitation "the symbol data of all channels corresponding to a predetermined frame" is indefinite because it is unclear to what is being referred to as the predetermined frame when a frame can be seen as a period of time or an amount of data.

13. Regarding claim 16, this claim comprises of the same limitations as claim 13, therefore the same rejection applies.

14. Regarding claim 13, the limitation "the symbol data of all channels corresponding to a predetermined frame are first recorded in the first memory" is indefinite because it creates confliction with the limitations of claim 1 of which 13 depends on, which states that "storing the symbol data for the logical channel." According to the applicant's specifications, symbol data is stored in the buffer into sectors by each corresponding channel, not all channels [refer page 13 lines 10-31].

15. Regarding claim 16, this claim comprises of the same limitations as claim 13, therefore the same rejection applies.

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1-3 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsztoo et al (U.S Patent No. 6,639,915 B1)(Tsztoo hereafter) in view of Galdun et al. (US Pat. 5,933,654)(Galdun hereafter) in further view of Schlegel et al. (US Pat. 6,847,677)(Schlegel hereafter)

Regarding claims 1 and 6, Tsztoo teaches a symbol buffer memory device [refer FIG. 9; 934] of a base station modem [refer FIG. 9; 900], in which the symbol data (i.e., voice data) is stored for transmission to a physical layer [column 13, lines 38-41] comprising: a buffer memory (voice packet buffer memory, refer FIG. 9; 934) for storing the symbol data for the logical channel according to input sequences (i.e., input CHANNEL_ADD, FIG. 9);

a start address table (i.e., channel address memory, refer FIG. 9; 922) for storing address information (the channel address memory stores channel base address values)[column 15 lines 1-10] according to the logical channels (the channel base addresses are based upon CHANNEL# values stored in the content addressable memory (CAM))[column 15 lines 1-10], each of the address information indicating a location of initial symbol data corresponding to each of the logical channels from among the symbol data stored in the buffer memory [column 15, lines 11-19](the CHANNEL# values determine the channel base address within the channel address memory

[column 15 lines 1-10], so that voice data can then be read or written to the VPBM according to a channel [column 15 lines 15-55]); a multiplexer [refer FIG. 9; 930] for selectively outputting the address information stored in the start address table [refer FIG. 9; 922] by an enable signal (i.e. signal sent from request arbiter 928 to mux 930) set for each of the logical channels [column 12, lines 50-54], and

when the symbol data is stored in the buffer (voice data is received from an external source)[column 12 lines 31-38][abstract], the address information indicating positions at which the initial symbol data of each logical channel is stored in the start address table (i.e., channel address memory 922, FIG. 9)(the channel address memory stores channel base address values [column 15 lines 1-10] determined by CHANNEL#'s from the CAM [column 15 lines 1-10], so that voice data can then be read or written to the VPBM according to a channel [column 15 lines 15-55]).

However Tsztoo fails to disclose storing symbol data of the logical channel according to input sequences of the symbol data without division of segments, so that the symbol data are stored in a continuous arrangement according to a data size of the logical channel.

Galdun discloses, in the field of buffer memories, a dynamic buffer memory system in which received data of particular packet sizes (i.e. data size) is stored into a buffer memory area [column 3 lines 17-27], the buffer memory area being fragmented into memory blocks that can be dynamically sized for efficiency so to provide additional memory space for data (i.e. continuous arrangement) [column 5 lines 58-67, column 6

lines 1-10] each fragment referenced by pointers (i.e. head address)[refer Fig. 3][column 6 lines 52-61].

It would have been obvious to one of ordinary skill in the art to given the buffer memory taught by Tsztoo [refer Fig. 4 and 7] for storing voice data in fixed segments according to channel and addressable by base addresses to be modified to incorporate dynamic buffer memory allocation for data of varying sizes as disclosed by Galdun. One would be motivated to do so to provide an efficient management of buffer memory area for data of unknown sizes [refer Galdun; column 1 lines 63-67, column 2 lines 1-7].

However Tsztoo fails to disclose the symbol memory buffer of the base station modem belongs to a mobile communication system, in which the symbol data corresponding to at least one logical channel is coded in at least one encoding ratio (i.e. modulation or encoding scheme) when stored.

Schlegel discloses, in the field of communications, a wireless communications system that communicates data bits (or data symbols, as they are interchangeable) wirelessly over channels by encoding the data using a modulation and encoding scheme [column 4 lines 29-52], the data symbols, or data bits as encoded, can be stored within a buffer memory, which can be designated for before being passed on for transmission [column 12 lines 44-47].

It would have been obvious to one with ordinary skill in the art at the time of the invention was made to modify the teaching of Tsztoo to integrate and implement the symbol memory buffer of the base station modem within a wireless mobile communication system, in which the symbol data corresponding to at least one channel

and coded in at least one encoding scheme is stored as taught by Schlegel. One would be motivated to do so to apply a known technique, such as wireless communication, data encoding and storage, to a known device, such as the voice apparatus transmitting voice data over a network taught by Tsztoo, ready for improvement to yield predictable results. Furthermore, one would be motivated to do so to provide a wireless communication system that receives and transmits voice and data information [refer Schlegel; column 6 lines 57-64] that would provide the voice data taught by Tsztoo in an efficient manner through saving processing time and reduction of cost in transmission [refer Schlegel; column 1 lines 55-60].

Regarding claims 2 and 7, Tsztoo teaches when storage of symbols corresponding to a predetermined logical channel has been completed (voice data is stored into the buffer system in a channel by channel basis, with locations in the buffer memory are predetermined for channels)[column 6 lines 42-58], an initial symbol of a channel is subsequently stored at a position of a word in the buffer memory next to the already-stored symbols (the storing of data symbol among channels is continuous in the buffer) [column 10, lines 12-16, 29-32].

Regarding claim 3 and 8, Tsztoo teaches a selection signal input to the multiplexer (i.e., enable signal sent from request arbiter 928 to mux 930) is produced by reading an enable state of a corresponding channel by means of a pulse signal (i.e. control signal, column 14, lines 8-12) of each channel, the enable state of the corresponding channel

being stored in the start address table (i.e., channel address memory 922, FIG. 9).

3. Claims 4-5 and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsztoo in view of Galdun in further view of Schlegel as applied to claims 1-3 and 6-8 above, in further view of Witkowski et al (U.S Patent No. 6,201,789 B1)(Witkowski hereafter).

Regarding claims 4-5 and 9-10, Tsztoo fails to disclose that symbol data for one channel are divided and stored in at least two storage sectors of the buffer memory, link information between the storage sectors in which the symbol data for said one channel are stored is stored in the buffer memory and in the start address table.

Witkowski teaches a network switch having a plurality of ports for sending and receiving data packets. It is disclosed that a switch includes a memory having a data packet portion divided into sectors chained together using link addresses. According to the embodiment, the sectors are initially linked into a freepool chain of sectors. As data packets are received, a receive sector chain is created for each network port by pulling sectors from the freepool chain as needed (column 3, lines 54-64). Hence, the link addresses enable the data packets stored in different sectors to be transmitted and received in their entirety.

It would have been obvious to one with ordinary skill in the art at the time of the invention was made to modify the teachings of Tsztoo and Schlegel to create link information when data for one channel are divided and stored in at least two storage

sectors of the buffer memory and store such linking information in the buffer memory and in the start address table as taught by Witkowski. One would be motivated to do so in order to include transmit address links to form transmit packet chain for each port receiving data packets for transmission [refer Witkowski; column 3, lines 44-47].

Regarding claims 11 and 14, Tsztoo doesn't explicitly disclose that the enable signal represents if the logical channel (i.e. a buffer memory tied to the channel) is operating.

Galdun discloses, in the field of buffer memories, a dynamic buffer memory system in which received data of particular packet sizes (i.e. data size) is stored into a buffer memory area [column 3 lines 17-27], the buffer memory area being fragmented into memory blocks that can be dynamically sized for efficiency so to provide additional memory space for data (i.e. continuous arrangement) [column 5 lines 58-67, column 6 lines 1-10] each fragment referenced by a descriptor that comprises of a status word [refer Fig. 3; 32a-n], a status word received determines a status of particular channels used with the buffer memory fragments (i.e. representative of operation)[column 4 lines 32-39][column 3 lines 35-44].

It would have been obvious to one of ordinary skill in the art to give the buffer memory taught by Tsztoo [refer Fig. 4 and 7] for storing voice data in fixed segments according to channel and addressable by base addresses to be modified to incorporate dynamic buffer memory allocation for data of varying sizes with a status indicator of the buffer memory for operations as disclosed by Galdun. One would be motivated to do so

to provide an efficient management of buffer memory area for data of unknown sizes [refer Galdun; column 1 lines 63-67, column 2 lines 1-7].

Allowable Subject Matter

4. Claims 12,13,15 and 16 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Response to Arguments

5. Applicant's arguments filed 3/30/2010 have been fully considered but they are not persuasive.

1. Regarding claims 1-16, applicant argues that the applied reference still does not teach the claim limitation, "symbol data" as recited in claim 1.

In response to the above-mentioned argument, examiner respectively disagrees. As was mentioned within Schlegal, the terms data bit and data symbol are interchangeable in some respect, further stating that one data symbol **may** be represented by several data bits [refer Schlegal: column 4 lines 29-52]. Examiner clearly relies upon Schlegal to meet the limitations of symbol data having an encoding ratio, which examiner has admitted that Tsztoo did not have support for. However, examiner respectively maintains that by itself, symbol data can be seen merely as voice data, or any form of data bits, stored since the data can eventually become symbols

when encoded by particular modulations or ratios as taught by Schlegal [column 4 lines 29-52].

2. Regarding claims 1-16, applicant argues that the applied reference does not teach newly added claim limitation, namely, "a buffer memory for storing the symbol data for the logical channel according to input sequences of the symbol data without division of segments, so that the symbol data are stored in a continuous arrangement according to data size of the logical channel".

In response to the above-mentioned argument, examiner respectively directs the applicant to Galdun et al.

Galdun discloses, in the field of buffer memories, a dynamic buffer memory system in which received data of particular packet sizes (i.e. data size) is stored into a buffer memory area [column 3 lines 17-27], the buffer memory area being fragmented into memory blocks that can be dynamically sized for efficiency so to provide additional memory space for data (i.e. continuous arrangement) [column 5 lines 58-67, column 6 lines 1-10] each fragment referenced by pointers (i.e. head address)[refer Fig. 3][column 6 lines 52-61].

Conclusion

3. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan C. Kavleski whose telephone number is 571-270-3619 and fax number is 571-270-4619. The examiner can normally be reached on Mon-Fri 7:30am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dang T. Ton can be reached on 571-272-3171. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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